



Earthquake Hazards Program

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Complete Report for Cane Spring fault (Class B) No. 1067

[Brief Report](#) || [Partial Report](#)

citation for this record: Anderson, R. Ernest, compiler, 1998, Fault number 1067, Cane Spring fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, <http://earthquakes.usgs.gov/regional/qfaults>, accessed 05/20/2011 09:28 AM.

Synopsis The Cane Spring fault is one of a group of northeast-striking faults known or inferred to have sinistral slip in and near the southern part of the Nevada Test Site. The fault is mainly a Tertiary structure with a poorly documented Quaternary history evidenced by discontinuous short (< 0.6 km) fault traces on early Pleistocene(?) deposits. Much of its trace is in bedrock, and a 2.6-km-long trace previously mapped as Quaternary may be a fault-line scarp on bedrock, thus the structure is considered herein to be a class B fault.

Name comments Name applied by Poole and others (1965 #1600) to a northeast-striking fault extending from the Halfpint Range southwest past Cane Spring to the area southeast of Skull Mountain.

County(s) and State(s) NYE COUNTY, NEVADA

AMS sheet(s) [Death Valley](#)

Physiographic province(s) BASIN AND RANGE

Reliability of location Good

Compiled at 1:250,000 scale.

Comments: The Quaternary trace of the Cane Spring fault was compiled from 1:250,000-scale mapping of Piety (1992 #538) who compiled it from various sources (Ekren and Sargent, 1965 #1509; Poole and others, 1965 #1600; Cornwall, 1972 #1482; Swadley and Huckins, 1990 #1666; Reheis and Noller, 1991 #1195). These sources were based on field mapping and inspection of aerial photos at scales ranging from 1:24,000 to 1:80,000. Most of the trace of the Cane Spring fault is in bedrock where its location is well controlled (Cornwall, 1972 #1482; Frizzell and Shulters, 1990 #1037). Subsurface projections of the fault to the northeast beneath basin-fill deposits are uncertain and vary from 4.7 km (Cornwall, 1972 #1482) to 12 km (Reheis and Noller, 1991 #1195) in length.

Geologic setting The Cane Spring fault is one of four main faults that have been grouped into the 30-to-60-km-wide Spotted Range-Mine Mountain structural zone (SRMM), which is characterized by northeast-striking, left-lateral faults that have experienced relatively small amounts of displacement (p. 9 Carr, 1974 #1470; p. 56 Carr, 1984 #1472). The other three faults in SRMM are the Mine Mountain fault [1066], the Rock Valley fault [1065], and the Wahmonie fault [1068]. These faults have been interpreted to be "first-order structures that form a conjugate system with the northwest-striking, right-lateral faults of the Las Vegas Valley shear zone" (Barnes and others, 1982 #1441). On the basis of field study reported in a summary of northeast-trending strike-slip fault zones of the SRMM (TRW Environmental Safety Systems Inc., 1998 #3907), outcrops show the Cane Spring fault to be a shear zone about 1.5 m wide oriented N50°E and dipping vertical to 80°S. Long-term displacement is interpreted to be mainly dip slip.

Length (km) 15 km.

Average strike N37°E

Sense of movement Sinistral

movement

Comments: Displacement on the Cane Spring fault may be oblique. The southwestern end is shown as down to the southeast (Ekren and Sargent, 1965 #1509; Poole and others, 1965 #1600); its central part near Cane Spring is shown by as down to the northwest (Poole and others, 1965 #1600); and its northeastern end northeast of Cane Spring is shown as left-lateral (Poole and others, 1965 #1600). The mapping by Cornwall (1972 #1482) shows the Cane Spring fault as having left-lateral (sinistral) strike slip along its entire length. Faults along the southern side of Skull Mountain are portrayed by Swadley and Huckins (1990 #1666) as both down to the northwest and down to the southeast. On the basis of field study reported in a summary of northeast-trending strike-slip fault zones of the SRMM (TRW Environmental Safety Systems Inc., 1998 #3907), left-slip kinematic indicators are recognized, but the main long-term displacement is interpreted to be dip slip.

Dip Vertical to 80°S

Comments: Based on field study reported in a summary of northeast-trending strike-slip fault zones of the SRMM (TRW Environmental Safety Systems Inc., 1998 #3907).